Purple Martins Along the King County Marine Shoreline: Citizen Conservation Efforts

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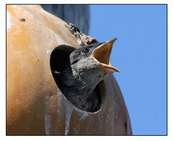


INTRODUCTION

Purple martins (*Progne subis*) are the largest swallows in North America and typically start arriving in the Puget Sound area from their wintering areas in South America (SE Brazil) in mid-to-late April. They remain in Puget Sound breeding/rearing grounds until late August to early September when they leave for South America.

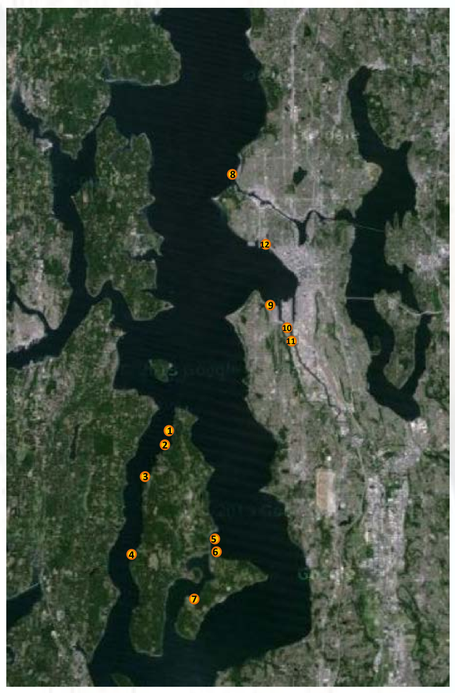
Purple martins (PUMA) typically nest in colonies and use old woodpecker holes or other natural cavities that are near or adjacent to the shoreline; particularly in marine and estuarine areas of their west coast breeding range. Once prevalent on the west coast, a decline in nesting habitat (e.g., loss of untreated wood pilings and natural snags) and competition from non-native birds such as European starlings led to a sharp population decline. In Washington (WA), the purple martin is a State Candidate Species and considered a Species of Greatest Conservation Need under the federally mandated State Wildlife Action Plan. In British Columbia (BC), Canada it was downgraded from Threatened to a Species of Special Concern in 2005.

A purple martin recovery and stewardship program was established in BC in 1985. As a result, the PUMA population has increased from less than 6 breeding pairs to 950 pairs in 2013. Unfortunately, no formal program exists for WA, despite the fact that WA State Dept. of Fish & Wildlife (WDFW) first suggested listing PUMA as Threatened over 30 years ago. Largely through volunteer efforts, in coordination with WDFW and other stakeholders such as local Audubon chapters, there is a desire to bring similar management attention to this species via citizen stewardship programs. Currently, the efforts of volunteers in King County offer a model to expand off of with area collaborators. The end result being support of this species, local populations, and learning more of the particular ecological needs and synergistic factors that may affect these birds throughout their Pacific Northwest range. The populations that exist currently largely remain due to local volunteer martin steward efforts.

The removal of dead and dying trees has reduced the number of natural nest cavities. Removal of creosote-treated pilings has reduced opportunities for placement of artificial cavities over water. In Puget Sound, almost all purple martins are dependent on artificial nest cavities. Monitoring and maintenance of purple martin colonies in WA are almost entirely dependent upon citizen volunteers. WDFW is currently in the process of updating a regional database to document active nest site locations which will assist volunteers in site selection for future colony expansion. Opportunities for natural site enhancement are also of interest and important in promoting this species to once again occupy natural structures.

NEST LOCATIONS

Several active nesting colonies have been established along the King County marine shoreline, including 7 colonies on Vashon-Maury Islands, one in Seattle (Ballard), and one in Seattle near Kellogg island in the Duwamish River. Past active sites include Terminal 105 in the Duwamish River, Jack Block Park in West Seattle, and east of Terminal 90 in Elliott Bay. The map below shows active and maintained sites.



Vashon-Maury Island
1 Sylvan Beach
2 Fern Cove
3 Cove
4 Lisabeula
5 Ellisport
6 Tramp Harbor
7 Dockton

Seattle
8 Shilshole Bay
9 Jack Block Park
10 Terminal 105
11 Kellogg Island
12 Terminal 90

Note: sites with blue text were confirmed active in 2013


Gourds and boxes on Shilshole Bay derelict pilings

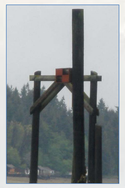

Gourds on pilings east of Terminal 90, site not assessed in recent years


Gourds on pilings west of Kellogg Island in the Duwamish River


Gourds at two locations in Jack Block Park


Gourds and boxes on Tramp Harbor pilings


Gourds on dock at Dockton Park in Quartermaster Harbor (photo by Jim Simmonds)


Multi-cavity box at Dockton (photo by Jim Simmonds)

MATERIALS & METHODS

If natural cavities are unavailable, PUMA will use both natural and artificial gourds (plastic) and wood boxes for nesting. Boxes and artificial gourds are advantageous as they allow access to count and band chicks. However, starlings and sparrows can fit through the box opening and must be carefully monitored. Due to this, boxes are not recommended for use in areas with known starling and house sparrow populations. Although other swallow species (tree swallows in particular) will use gourds, starlings and sparrows will rarely nest in a gourd. Some Vashon Island martins nest in multiple cavity boxes, the only place in the greater Puget Sound area where this has been documented.

Nest cavities are cleaned and available in early spring prior to or just after arrival of the first martins. The 'scouts' will arrive first, typically in late April to early May followed by adults and then subadults.

Sites are monitored to assess: if the site is active, the number of nesting pairs, an approximate number of fledglings, the number and color for any banded bird present, presence of nesting sparrows or starlings (evicted in some cases). Data and site information are sent to WDFW for entry into the statewide PUMA database.

Types of PUMA nest cavities


Artificial (plastic) gourds


Natural gourd


Old wooden box at Shilshole still being used


Wooden boxes showing current design


Natural cavity in piling

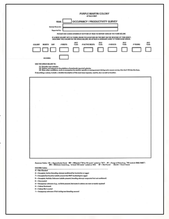
Maintenance/Monitoring activities


Carl Bevis and Jean Power cleaning and installing new gourds


Rich Siegrist monitoring Vashon Island colony (photo courtesy of R.Siegrist)


Tree swallow nesting in old box at Shilshole Bay (the pair was not evicted!)

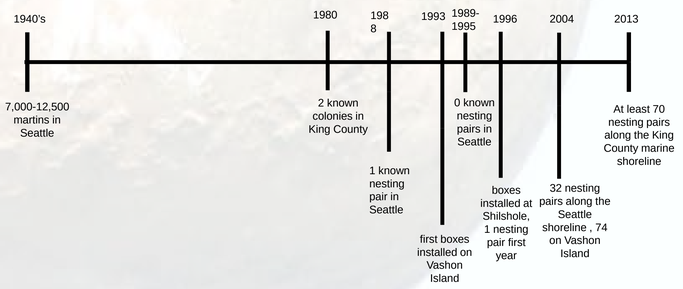

Banded male at Shilshole Bay. This bird was banded on Vancouver Island, B.C.


Form sent to WDFW for each colony at end of each year


George Blomberg checking Jack Block gourds


Banded female at Shilshole Bay. This bird was banded in Silver Lake, WA

PURPLE MARTINS IN KING COUNTY TIME LINE



NUMBER OF NESTING PAIRS

A total of 92 nest cavities were available in 2013 on Vashon-Maury Island, 34 at Shilshole, 16 at Kellogg Island, 32 at Jack Block Park, and 6 at Terminal 105. The only consistent long-term record of the number of nesting pairs exists for the Vashon-Maury Island colonies. The number of nesting pairs has increased 2,200% since 1993 following installation of nest cavities.

	Number of Nesting Pairs					
	Vashon-Maury Island (all 7 sites)	Shilshole Bay	Kellogg Island	Terminal 105	Jack Block Park	Terminal 90
1993	2	0	0	0	0	nav
1994	3	0	0	0	0	nav
1995	5	0	0	0	0	nav
1996	7	1	nav	nav	nav	nav
1997	10	nav	nav	nav	nav	nav
1998	27	nav	nav	nav	nav	nav
1999	33	nav	nav	nav	nav	nav
2000	38	nav	nav	nav	nav	0
2001	37	nav	nav	nav	2	nav
2002	51	5	nav	nav	6	nav
2003	60	nav	nav	nav	7	0
2004	74	11	nav	nav	11	0
2005	76	nav	nav	nav	nav	nav
2006	70	nav	nav	nav	nav	nav
2007	71	nav	nav	nav	nav	nav
2008	17	nav	nav	nav	nav	nav
2009	19	9	nav	nav	nav	nav
2010	29	14	nav	nav	nav	nav
2011	33	12	nav	nav	nav	nav
2012	36	14	10 *	0	0	nav
2013	46	22	21	1	0	nav

* Indicates number is estimated nav=data not available

PUMA are aerial insectivores and during years with cold late springs and cool and/or wet summers that affect their food supply—such as the unusually cold 2008 spring--population declines are observed.


Adult removing nestling fecal sac


Nestlings


Dragonfly feeding

FUTURE GOALS

- Development & implementation of a sustainable PUMA program with a collaborative lead (e.g., Seattle Audubon). This is a high priority need!
- Identification of data collection & nest management needs
- Work with state and local jurisdictions to identify new PUMA sites
- Work with state and local agencies regarding the removal of creosote pilings (structures for housing) and a viable alternative.

ACKNOWLEDGMENTS

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- Carl Bevis for site installation and maintenance
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- Kris Baker for maintenance assistance
- Bruce Cousens (B.C. PUMA Stewardship & Recovery Program Coordinator) for technical advice
- Michelle Tirhi & Tammy Schmidt (WDFW) for development and maintenance of the statewide PUMA database


Kevin Li at Shilshole Bay